WE CLAIM:

1. A control structure for the active damping of low-frequency oscillations in numerically-controlled machine tools, comprising:

an rpm regulator comprising:

a proportional component; and

an integral component;

an active damping element that forms a low-frequency correction signal, which is phase-shifted with respect to an interfering low-frequency oscillation and free of d.c. components; and

a summing point that is upstream or downstream of said integral component and receives said low-frequency correction signal.

2. The control structure in accordance with claim 1, further comprising a second summing point that determines a second deviation of an actual rpm from a nominal rpm and said second deviation is directed to said proportional component; and

wherein a first deviation of an actual rpm from a nominal rpm is determined at said summing point and is directed to said integral component, and said low-frequency correction signal is applied at said summing point upstream of said integral component.

3. The control structure in accordance with claim 1, further comprising:

a second integral component that corresponds to said integral component

of said rpm regulator, wherein said low frequency correction signal is applied to an input of said second integral component and said second integral component generates a signal at its output is applied to a summing station located downstream of said integral component.

4. The control structure in accordance with claim 2, further comprising:

a position regulator that generates a nominal rpm signal;

a third summing point within said damping element that receives said nominal rpm signal and an rpm derived signal that is derived from a nominal position value, said third summing point generates said correction signal based on a difference of said nominal rpm signal and said rpm derived signal.

5. The control structure in accordance with claim 3, further comprising:

a position regulator that generates a nominal rpm signal;

a second summing point within said damping element that receives said nominal rpm signal and a derived rpm signal that is derived from a nominal position value, said third summing point generates said correction signal based on a difference of said nominal rpm signal and said derived rpm signal.

6. The control structure in accordance with claim 4, further comprising a DT1 member within said damping element that receives said difference between said nominal rpm signal and said derived rpm signal.

7. The control structure in accordance with claim 5, further comprising a DTl member within said damping element that receives said difference between said nominal rpm signal and said derived rpm signal.

8. The control structure in accordance with claim 6, wherein a signal from an output of said DT1 member is supplied to a PT2 member.

9. The control structure in accordance with claim 7, wherein a signal from an output of said DT1 member is supplied to a PT2 member.

10. The control structure in accordance with claim 6, wherein an output of said DT1 member is supplied via a PT1 member to a branch of said nominal rpm conducted on said integral component of said rpm regulator.

11. The control structure in accordance with claim 7, wherein an output of said DT1 member is supplied via a PT1 member to a branch of said nominal rpm conducted on said integral component of said rpm regulator.

12. The control structure in accordance with claim 8, wherein said output of said DT1 member is supplied via a PT1 member to a branch of said nominal rpm conducted on said integral component of said rpm regulator.

13. The control structure in accordance with claim 9, wherein said

output of said DT1 member is supplied via a PT1 member to a branch of said nominal rpm conducted on said integral component of said rpm regulator.

14. The control structure in accordance with claim 8, wherein a damping time constant of said PT2 member corresponds to a resonance frequency to be damped.

15. The control structure in accordance with claim 9, wherein a damping time constant of said PT2 member corresponds to a resonance frequency to be damped.

16. The control structure in accordance with claim 4, wherein said difference between said nominal rpm and said derived rpm is multiplied by an amplification factor.

17. The control structure in accordance with claim 2, wherein said nominal rpm is conducted over a reference model of a control track prior to said determining said second deviation with said actual rpm at said second summing point.

18. The control structure in accordance with claim 17, wherein said reference model of said control track is embodied as a PT2 element, which simulates said control track and acts in a counter-phase manner.